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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,572	03/08/2001	Yuki Mizukawa	003510-080	5373

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EXAMINER
SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
1714	4

DATE MAILED: 06/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Acti n Summary	Application No.	Applicant(s)	
	09/800,572	MIZUKAWA ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for substituents for R_1-R_6 listed on pages 7-12 of the specification, does not reasonably provide enablement for any type of substituent. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Case law holds that applicant's specification must be "commensurately enabling [regarding the scope of the claims]" *Ex Parte Kung*, 17 USPQ2d 1545, 1547 (Bd. Pat. App. Inter. 1990). Otherwise **undue experimentation** would be involved in determining how to practice and use applicant's invention. The test for undue experimentation as to whether or not all compounds within the scope of claims 1-18 can be used as claimed and whether claims 1-18 meet the test is stated in *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. Inter. 1986) and *In re Wands*, 8 USPQ2d 1400, 1404 (Fed.Cir. 1988). Upon applying this test to claims 1-18, it is believed that undue experimentation **would** be required because:

(a) *The quantity of experimentation necessary* is **great** since claims 1-18 read on any type of substituent for R_1-R_6 such as acylamino, heterocyclic oxy, ureido, phosphinoylamino, etc.

(b) There is **no** *direction or guidance presented* for making an ink or coloring composition comprising a dye which includes any type of substituent for R_1-R_6 such as acylamino, heterocyclic oxy, ureido, phosphinoylamino, etc.

(c) There is an ***absence** of working examples* concerning making an ink or coloring composition comprising a dye that contains any type of substituent for R_1-R_6 such as acylamino, heterocyclic oxy, ureido, phosphinoylamino, etc.

In light of the above factors, it is seen that undue experimentation would be necessary to make and use the invention of claims 1-18.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 5-7 after formula (I) in each of claims 1, 10, and 12, the claims recite an improper Markush group. It is suggested that in the sixth line after the formula in each claim, after "group," and before "arylsulfonyl", "and" is changed to "or".

Also in the ninth line after the formula in each of the claims, a word appears to be missing. After "ring," and before "any", it is suggested that "and" is inserted.

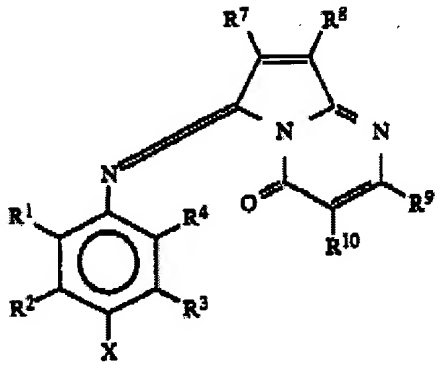
Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikoshiba et al. (U.S. 5,344,933).

Mikoshiba et al. disclose ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



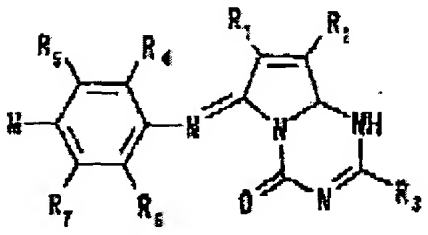
where R^1-R^4 are each hydrogen or nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., X is –OH or NR^5R^6 where R^5 and R^6 are each hydrogen, alkyl, aryl, or heterocyclic group, and R^7-R^{10} are each hydrogen nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., and any of R^1 and R^2, R^3 and R^4, and R^2 and R^5, and R^3 and

R^6 can bond together to form a ring (col.2, lines 55-68, col.3, lines 15-25, col.3, line 65-col.4, line 13, and col.40, line 59).

In light of the above, it is clear that Mikoshiba et al. anticipate the present claims.

7. Claims 1-2 and 10-13 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2000-327939.

Pending translation, it is noted that JP 2000-327939 discloses ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



where R_1 and R_3-R_7 are each hydrogen or substituent, R_2 is alkyl, aryl, alkoxycarbonyl group, etc., M is –OY or -NR_8R_9 where Y is hydrogen or cation necessary to neutralize charge and R_8 and R_9 are each alkyl group, aryl group, heterocyclic group, etc. and any of R_4 and R_5 or R_6 and R_7 can form a ring.

In light of the above, it is clear that JP 2000-327939 anticipates the present claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

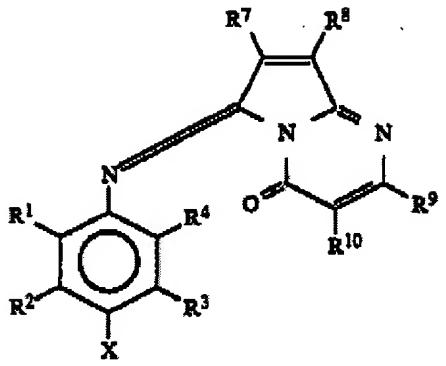
9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-4, 5-14, and 16-18 at rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. (U.S. 6,031,019) in view of either Mikoshiba et al. (U.S. 5,344,933) or JP 2000-327939.

Tsutsumi et al. disclose a water-based ink jet ink and method of ink jet recording wherein the ink comprises coloring particulates comprising oil-soluble dye and an oil-soluble polymer. The oil-soluble dye is dispersed in the oil-soluble polymer. Further, the ink contains high boiling-point solvent such as ethylene glycol or glycerin wherein the coloring particles are dispersed in the water/solvent medium. The ink contains 1.5-25% dye and 2-20% polymer so that the ratio of polymer to dye is calculated as approximately 0.08:1(2:25) to 13.33:1(20:1.5) which completely overlaps the claimed range of 0.1:1-10:1 in present claim 6 (col.3, line 65-col.4, line 17, col.4, lines 21 and 37-39, col.9, lines 1-2, col.11, lines 27-30 and 56-60, col.13, lines 30-31, preparation example 2 and example 5). From example 5, it is calculated that the ratio of solvent to dye is 0.2:1, which falls within the claimed range of 0.01:1 to 10:1 in present claim 8.

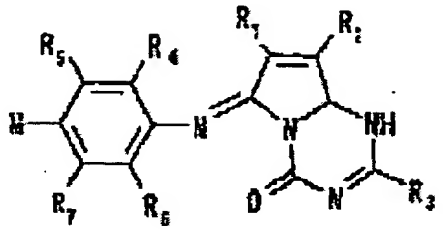
The difference between Tsutsumi et al. and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

Mikoshiba et al. disclose ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



where R^1-R^4 are each hydrogen or nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., X is –OH or NR^5R^6 where R^5 and R^6 are each hydrogen, alkyl, aryl, or heterocyclic group, and R^7-R^{10} are each hydrogen nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., and any of R^1 and R^2, R^3 and R^4, and R^2 and R^5, and R^3 and R^6 can bond together to form a ring (col.2, lines 55-68, col.3, lines 15-25, col.3, line 65-col.4, line 13, and col.40, line 59). The motivation for using such dye is that the dye has high fastness in heat, light, moisture, air, and chemicals and is inexpensive and easy to synthesize (col.2, lines 10-15).

Alternatively, pending translation, it is noted that JP 2000-327939 discloses ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



where R_1 and R_3-R_7 are each hydrogen or substituent, R_2 is alkyl, aryl, alkoxycarbonyl group, etc., M is –OY or -NR_8R_9 where Y is hydrogen or cation necessary to neutralize charge and R_8 and R_9 are each alkyl group, aryl group, heterocyclic group, etc. and any of R_4 and R_5 or R_6 and R_7 can form a ring. The motivation for using such dye is that the dye has excellent absorption properties and color fastness.

In light of the motivation for using specific type of oil-soluble dye disclosed by either Mikoshiba et al. or JP 2000-327939 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink jet ink of Tsutsumi et al. in order to produce an ink with excellent resistance to heat, light, moisture, air, and chemicals, or alternatively, excellent absorption properties and color fastness, and thereby arrive at the claimed invention.

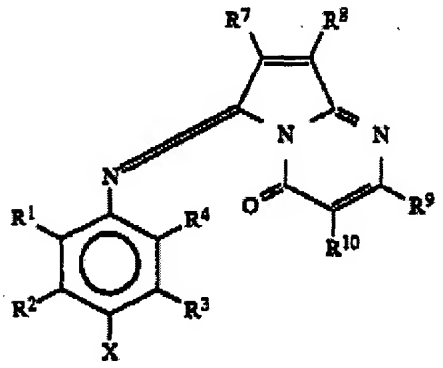
11. Claims 1-3, 5, 7, 10-14, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08269374 in view of either Mikoshiba et al. (U.S. 5,344,933) or JP 2000-327939.

Pending translation, it is noted that JP 08269374 discloses ink jet ink comprising water, solvent with high boiling point such as glycerin, oil-soluble dye, and oil-soluble polymer such as

polyamide, polyester, and polyurethane. The ink is prepared by different processes including that which involves dissolving the dye and polymer in the solvent to form a solution and then preparing a dispersion of dye and polymer by mixing the solution with water.

The difference between JP 08269374 and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

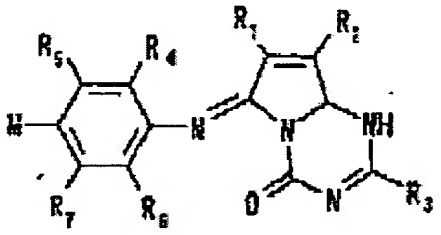
Mikoshiba et al. disclose ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



where R^1-R^4 are each hydrogen or nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., X is –OH or NR^5R^6 where R^5 and R^6 are each hydrogen, alkyl, aryl, or heterocyclic group, and R^7-R^{10} are each hydrogen nonmetallic atom group such as halogen, alkyl, aryl, heterocyclic group, etc., and any of R^1 and R^2, R^3 and R^4, and R^2 and R^5, and R^3 and R^6 can bond together to form a ring (col.2, lines 55-68, col.3, lines 15-25, col.3, line 65-col.4, line 13, and col.40, line 59). The motivation for using such dye is that the dye has high fastness

in heat, light, moisture, air, and chemicals and is inexpensive and easy to synthesize (col.2, lines 10-15).

Alternatively, pending translation, it is noted that JP 2000-327939 discloses ink suitable for use in ink jet printing wherein the ink comprises oil-soluble dye identical to that presently claimed wherein the dye has the formula:



where R_1 and R_3-R_7 are each hydrogen or substituent, R_2 is alkyl, aryl, alkoxycarbonyl group, etc., M is –OY or -NR_8R_9 where Y is hydrogen or cation necessary to neutralize charge and R_8 and R_9 are each alkyl group, aryl group, heterocyclic group, etc. and any of R_4 and R_5 or R_6 and R_7 can form a ring. The motivation for using such dye is that the dye has excellent absorption properties and color fastness.

In light of the motivation for using specific type of oil-soluble dye disclosed by either Mikoshiba et al. or JP 2000-327939 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink jet ink of JP 08269374 in order to produce an ink with excellent resistance to heat, light, moisture, air, and chemicals, or alternatively, excellent absorption properties and color fastness, and thereby arrive at the claimed invention.

12. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08269374 in view of either Mikoshiba et al. or JP 2000-327939 as applied to claims 1-3, 5, 7, 10-14, and 16-17 above, and further in view of Meyrick et al. (U.S. 6,344,497) and Kiritani et al. (U.S. 4,665,411).

The difference between JP 08269374 in view of either Mikoshiba et al. or JP 2000-327939 and the present claimed invention is the requirement in the claims of specific type of solvent.

Meyrick et al., which is drawn to ink jet inks, disclose the use of combination of water-miscible solvent such as those disclosed by JP 08269374 and water-immiscible solvent including high boiling solvent such as dibutyl phthalate (col.8, lines 20 and 55-57) wherein the use of a combination of such solvents produces an ink with improved optical density and chroma (Table 2). It is well known that dibutyl phthalate possesses dielectric constant of 6.4 as found in Kiritani et al. (col.3, line 41).

In light of the motivation for using specific solvent disclosed by Meyrick et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such solvent in the ink jet ink of JP 08269374 in order to produce an ink with improved optical density and chroma, and thereby arrive at the claimed invention.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

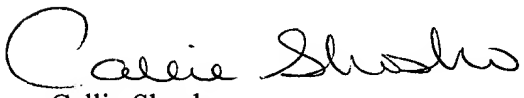
Onodera et al. (U.S. 5,753,017) disclose ink jet ink comprising azomethine dye.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Callie E. Shosho
Examiner
Art Unit 1714



Callie Shosho
June 4, 2002